

Claims

We claim:

- 1 1. A method for concealing errors in an intra-frame of a compressed video,
2 comprising:
 - 3 decoding the intra-frame to a plurality of macroblocks, each macroblock
 - 4 including a plurality of pixels arranged in a rectangular array;
 - 5 locating a lost macroblock during the decoding;
 - 6 concealing pixels along an outer boundary of the lost macroblock from
 - 7 nearest candidate pixels along outer boundaries of macroblocks immediately
 - 8 adjacent to the lost macroblock; and
 - 9 concealing all other pixels in the lost macroblock from nearest candidate
 - 10 pixels selected from previously concealed pixels in the lost macroblock.
- 1 2. The method of claim 1, in which the candidate pixels are directly above, below,
2 to the left and to the right of a current pixel to be concealed.
- 1 3. The method of claim 1, in which the pixels in the lost block are concealed in a
2 spiral order, starting at an upper left corner of the lost block, and running then
3 along the outer boundary, and ending in the middle of the lost block.
- 1 4. The method of claim 1, further comprising:
 - 2 sorting the candidate pixels C_i in an ascending order in terms of intensity
 - 3 values of the candidate pixels;
 - 4 determining a median value of the ordered candidate pixels;

5 determining a difference $Diff_i$ between the intensity value of the i^{th}
6 candidate pixel and the median intensity value;
7 determining a distance $Dist_i$ between the i^{th} candidate pixel and the current
8 pixel;
9 determining an evaluation score S_i for the i^{th} candidate pixel as sum of $Diff_i$
10 and $Dist_i$;
11 if the evaluation score S_i is greater than a threshold T , then rejecting the i^{th}
12 candidate pixel; and
13 linearly interpolating remaining candidate pixels and assign an interpolated
14 value to the current pixel p according to

$$15 \quad p = \left(\sum_i \frac{C_i}{Dist_i} \right) / \left(\sum_i \frac{1}{Dist_i} \right).$$

1 5. The method of claim 4, in which the threshold is twenty.

1 6. The method of claim 4, in which the distance metric is the number of pixels
2 from the current pixel to the candidate pixel.

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